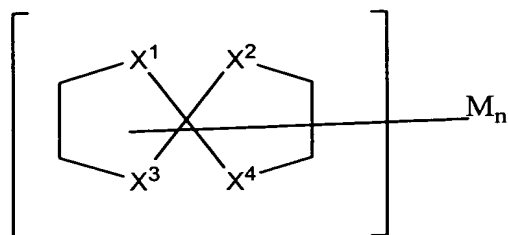


### Amendments to the Claims:

Please amend the claims as shown in the following listing of claims, which will replace all prior versions and listings of claims in the application.

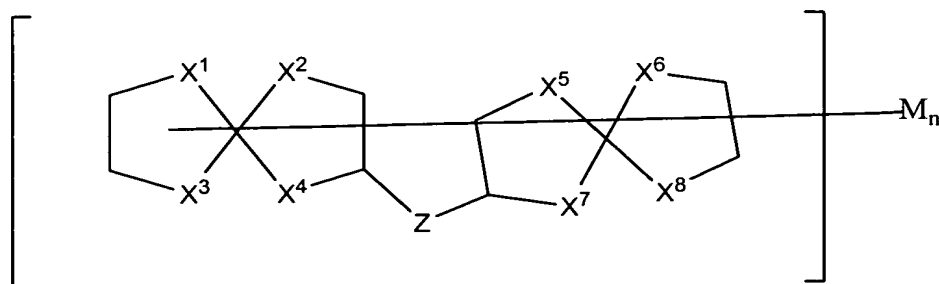
1-22. (Canceled)

23. (New) A compound of Formula I:



Formula I

or Formula II:



Formula II

wherein  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$  are independently O or S;

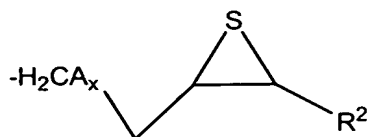
Z is  $-C_mR^{2-}_{2m-}$  wherein  $m = 1$  to  $4$ ;  $-C(R^2)_2SC(R^2)_2-$ ,  $-C(R^2)_2SSC(R^2)_2-$ , or

$-C(R^2)_2OC(R^2)_2$ ;

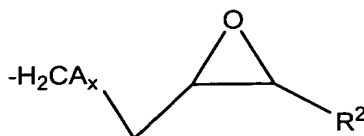
$n$  is from  $0$  to  $4$ ;

M is selected from  $CH_2Cl$ ,  $CH_2SC(O)R^1$ ,  $CH_2SC(S)R^1$ ,  $CH_2S(CH_2CH_2S)_qH$  wherein  $q$  is  $0$ ,  $1$  or  $2$ ;  $-CR^2=CH_2$ ,  $-CH_2OC(O)CR^2=CH_2$ ,  $CH_2N=C=S$ ,  $CH_2N=C=O$ ,  $CH_2NR^2H$ ,  $CH_2OH$ ,

CH<sub>2</sub>SCH<sub>2</sub>CH<sub>2</sub>CR<sup>2</sup>=CH<sub>2</sub>, phenyl, C(R<sup>2</sup>)<sub>2</sub> phenyl, furan, thiophene, halogen, C<sub>3</sub>-C<sub>6</sub> cycloalkyl, C<sub>3</sub>-C<sub>6</sub> heretocyclics, thiol, H



or



A is O, S or phenyl and x is 0 or 1;

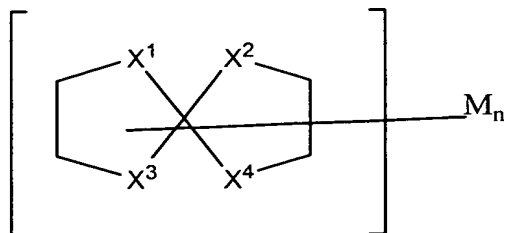
wherein R<sup>1</sup> is C<sub>1</sub>-C<sub>22</sub> alkyl; and

R<sup>2</sup> is H or C<sub>1</sub>-C<sub>22</sub> alkyl,

except that if the compound is STOC or SOTOC, at least one M substituent cannot be H and n must be 1, 2, 3 or 4.

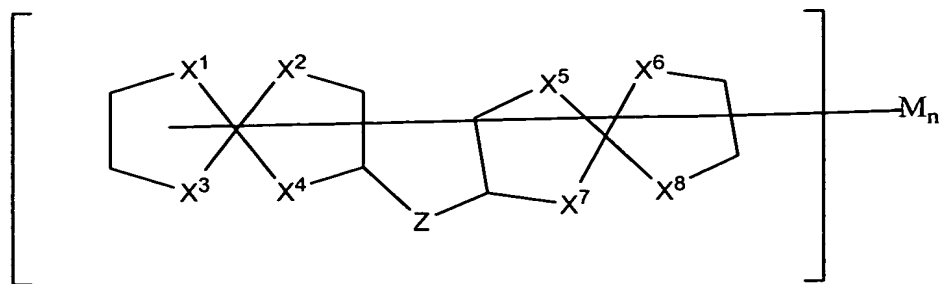
24. (New) The compound of claim 23, wherein at least two and up to all four of X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup> and X<sup>4</sup>, and at least two and up to all four of X<sup>5</sup>, X<sup>6</sup>, X<sup>7</sup>, and X<sup>8</sup> are sulfur.

25. (New) The compound of claim 23, further defined as having Formula I:



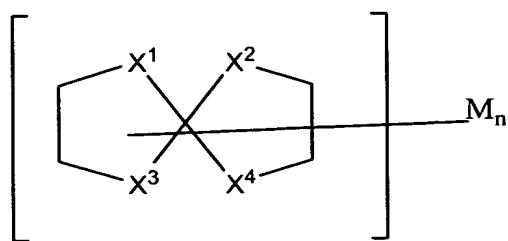
wherein X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup> and X<sup>4</sup> are O or S, wherein at least two and up to all four of X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup> and X<sup>4</sup> are S.

26. (New) The compound of claim 23, further defined as having Formula II:

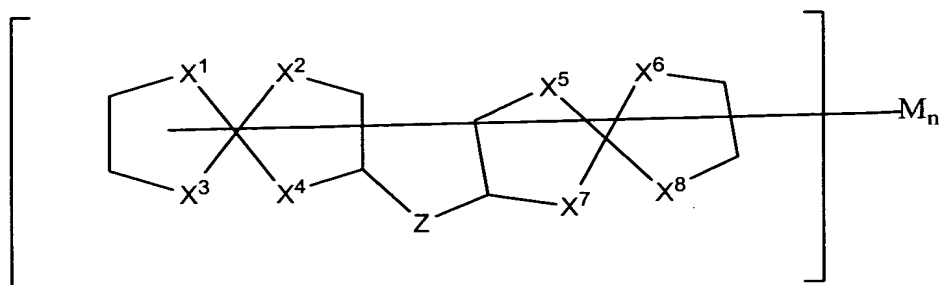


wherein n is 1, 2, 3 or 4.

27. (New) The compound of claim 23, further defined as:  
 2-(Mercaptomethyl)-1,4,6,9-tetrathiaspiro[4.4]nonane;  
 2,7-Bis(mercaptomethyl)-1,4,6,9-tetrathiaspiro[4.4]nonane;  
 2-(S-methyl)-7-vinyl-1,4,6,9-tetrathiaspiro[4.4]nonane thiolacetate;  
 2-(Mercaptomethyl)-7-vinyl-1,4,6,9-tetrathiaspiro[4.4]nonane;  
 7-(Mercaptomethyl)-2-(S-methyl)-1,4,6,9-tetrathiaspiro[4.4]nonane thiolacetate;  
 2-Mercaptomethyl-1-oxa-4,6,9-trithiaspiro[4.4]nonane; or  
 2,7-Bis(mercaptomethyl)-1-oxa-4,6,9-trithiaspiro[4.4]nonane.
  
28. (New) The compound of claim 23, further defined as:  
 2-(Chloromethyl)-1,4,6,9-tetrathiaspiro[4.4]nonane;  
 2-(S-Methyl)-1,4,6,9-tetrathiaspiro[4.4]nonane thiolacetate;  
 4-(S-Methyl)-1,3-dithiolane-2-thione thiolacetate;  
 2-(Chloromethyl)-7-(S-methyl)-1,4,6,9-tetrathiaspiro[4.4]nonane thiolacetate;  
 2,7-Bis(S-methyl)-1,4,6,9-tetrathiaspiro[4.4]nonane thiolacetate;  
 2-(S-methyl)-1-oxa-4,6,9-trithiaspiro[4.4]nonane thiolacetate;  
 2-(Mercaptomethyl)-1-oxa-4,6,9-trithiaspiro[4.4]nonane;  
 2-(Chloromethyl)-7-(S-methyl)-1-oxa-4,6,9-trithiaspiro[4.4]nonane thiolacetate; or  
 2,7-Bis(S-methyl)-1-oxa-4,6,9-trithiaspiro[4.4]nonane thiolacetate.
  
29. (New) A method for manufacturing optical lenses comprising:  
 polymerizing at least one STOC or SOTOC compound of Formula I :



or a bisSTOC or bisSOTOC compound of Formula II :



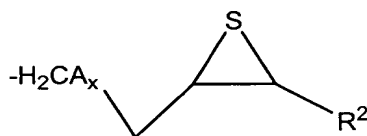
wherein  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$  are independently O or S;

Z is  $-C_mR^{2m}-$  wherein  $m = 1-4$ ;  $-C(R^2)_2SC(R^2)_2-$ ,  $-C(R^2)_2SSC(R^2)_2-$ , or

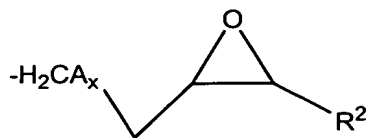
$-C(R^2)_2OC(R^2)_2$ ;

n is from 0 to 4, except that if the compound is a STOC or SOTOC, n must be 1, 2, 3 or 4;  
and

M is selected from  $CH_2Cl$ ,  $CH_2SC(O)R^1$ ,  $CH_2SC(S)R^1$ ,  $CH_2S(CH_2CH_2S)_qH$  wherein q is 0, 1 or 2;  $-CR^2=CH_2$ ,  $-CH_2OC(O)CR^2=CH_2$ ,  $CH_2N=C=S$ ,  $CH_2N=C=O$ ,  $CH_2NR^2H$ ,  $CH_2OH$ ,  $CH_2SCH_2CH_2CR^2=CH_2$ , phenyl,  $C(R^2)_2$  phenyl, furan, thiophene, halogen,  $C_3-C_6$  cycloalkyl,  $C_3-C_6$  heterocyclics, thiol, H, except that if the compound is a STOC or SOTOC, at least one M moiety cannot be H;



or



wherein A is S, O or phenyl and x is 0 or 1;

R<sup>1</sup> is C<sub>1</sub>-C<sub>22</sub> alkyl; and

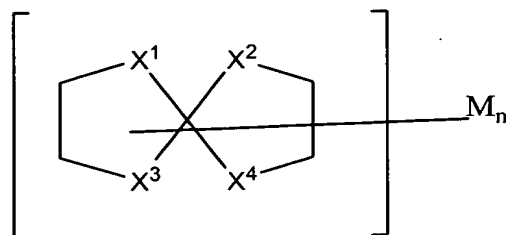
R<sup>2</sup> is H or C<sub>1</sub>-C<sub>22</sub> alkyl to form a polymer, and

forming an optical lens with said polymer.

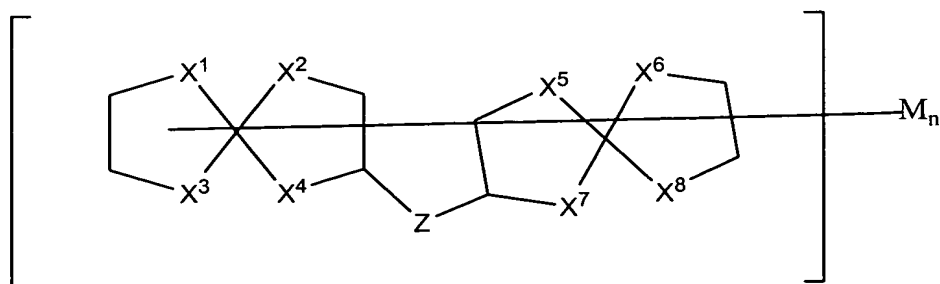
30. (New) The method of claim 29, wherein at least two and up to all four of X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup> and X<sup>4</sup> and at least two and up to all four of X<sup>5</sup>, X<sup>6</sup>, X<sup>7</sup>, and X<sup>8</sup> are sulfur.

31. (New) A method for manufacturing an optical lens comprising:

polymerizing a STOC or SOTOC compound of Formula I:



or a bisSTOC or bisSOTOC compound of Formula II



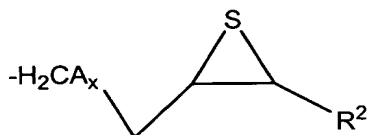
wherein X<sup>1</sup>, X<sup>2</sup>, X<sup>3</sup>, X<sup>4</sup>, X<sup>5</sup>, X<sup>6</sup>, X<sup>7</sup>, and X<sup>8</sup> are independently O or S;

Z is -C<sub>m</sub>R<sup>2</sup><sub>2m</sub>- wherein m = 1-4; -C(R<sup>2</sup>)<sub>2</sub>SC(R<sup>2</sup>)<sub>2</sub>-, -C(R<sup>2</sup>)<sub>2</sub>SSC(R<sup>2</sup>)<sub>2</sub>-, or

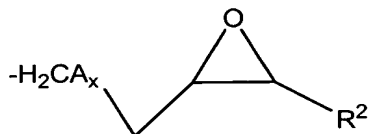
-C(R<sup>2</sup>)<sub>2</sub>OC(R<sup>2</sup>)<sub>2</sub>;

n is from 0 to 4, except that if the compound is a STOC or SOTOC, n must be 1, 2, 3 or 4; and

M is selected from  $\text{CH}_2\text{Cl}$ ,  $\text{CH}_2\text{SC}(\text{O})\text{R}^1$ ,  $\text{CH}_2\text{SC}(\text{S})\text{R}^1$ ,  $\text{CH}_2\text{S}(\text{CH}_2\text{CH}_2\text{S})_q\text{H}$  wherein q is 0, 1 or 2;  $-\text{CR}^2=\text{CH}_2$ ,  $-\text{CH}_2\text{OC}(\text{O})\text{CR}^2=\text{CH}_2$ ,  $\text{CH}_2\text{N}=\text{C}=\text{S}$ ,  $\text{CH}_2\text{N}=\text{C}=\text{O}$ ,  $\text{CH}_2\text{NR}^2\text{H}$ ,  $\text{CH}_2\text{OH}$ ,  $\text{CH}_2\text{SCH}_2\text{CH}_2\text{CR}^2=\text{CH}_2$ , phenyl,  $\text{C}(\text{R}^2)_2$  phenyl, furan, thiophene, halogen,  $\text{C}_3\text{-C}_6$  cycloalkyl,  $\text{C}_3\text{-C}_6$  heterocyclics, thiol, H, except that if the compound is a STOC or SOTOC, at least one M moiety cannot be H;



or



wherein A is S, O or phenyl and x is 0 or 1;

$\text{R}^1$  is  $\text{C}_1\text{-C}_{22}$  alkyl; and

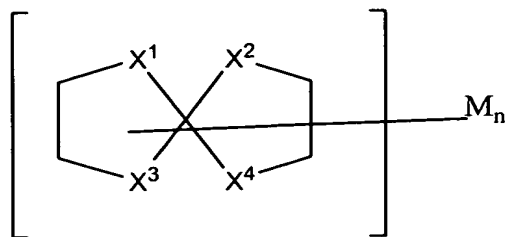
$\text{R}^2$  is H or  $\text{C}_1\text{-C}_{22}$  alkyl to form a polymer forming all or part of the optical lens.

32. (New) The method of claim 31, wherein at least two and up to all four of  $\text{X}^1$ ,  $\text{X}^2$ ,  $\text{X}^3$  and  $\text{X}^4$  and at least two and up to all four of  $\text{X}^5$ ,  $\text{X}^6$ ,  $\text{X}^7$ , and  $\text{X}^8$  are sulfur.

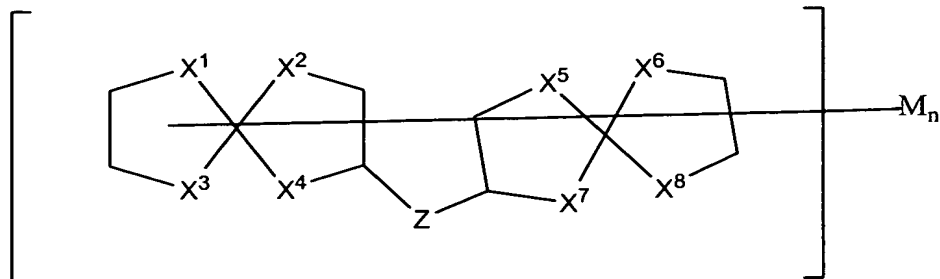
33. (New) The method of claim 31, wherein the polymer forms the body of the lens.

34. (New) The method of claim 31, wherein the polymer forms a coating of the lens.

35. (New) A (co)polymer comprising (co)polymerized monomers of Formula I:



or Formula II:



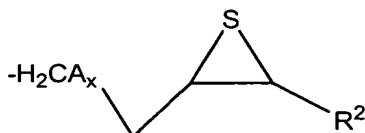
wherein  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$ , are independently O or S; and preferably at least two and up to all four of  $X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$ , and at least two and up to all four of  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$  are sulfur;

Z is  $-C_mR^{2}_{2m}-$  wherein  $m = 1-4$ ;  $-C(R^2)_2SC(R^2)_2-$ ,  $-C(R^2)_2SSC(R^2)_2-$ , or

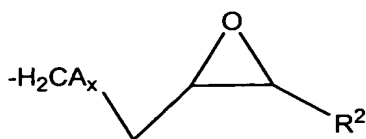
$-C(R^2)_2OC(R^2)_2$ ;

n is from 0 to 4, except that if the compound is a STOC or SOTOC, n must be 1, 2, 3 or 4; and

M is selected from  $CH_2Cl$ ,  $CH_2SC(O)R^1$ ,  $CH_2SC(S)R^1$ ,  $CH_2S(CH_2CH_2S)_qH$  wherein q is 0, 1 or 2;  $-CR^2=CH_2$ ,  $-CH_2OC(O)CR^2=CH_2$ ,  $CH_2N=C=S$ ,  $CH_2N=C=O$ ,  $CH_2NR^2H$ ,  $CH_2OH$ ,  $CH_2SCH_2CH_2CR^2=CH_2$ , phenyl,  $C(R^2)_2$  phenyl, furan, thiophene, halogen,  $C_3-C_6$  cycloalkyl,  $C_3-C_6$  heterocyclics, thiol, H, except that if the compound is a STOC or SOTOC, at least one M moiety cannot be H;



or



wherein A is S, O or phenyl and x is 0 or 1;

$R^1$  is  $C_1$ - $C_{22}$  alkyl; and

$R^2$  is H or  $C_1$ - $C_{22}$  alkyl

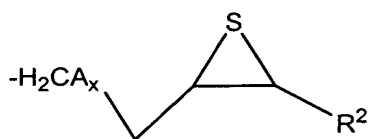
wherein  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$ , are independently O or S;

Z is  $-C_mR^{2}_{2m}-$  wherein  $m = 1-4$ ;  $-C(R^2)_2SC(R^2)_2-$ ,  $-C(R^2)_2SSC(R^2)_2-$ , or

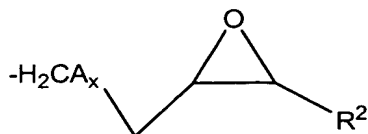
$-C(R^2)_2OC(R^2)_2$ ;

n is from 0 to 4; and

M is  $CH_2Cl$ ,  $CH_2SC(O)R^1$ ,  $CH_2SC(S)R^1$ ,  $CH_2S(CH_2CH_2S)_qH$  wherein q is 0, 1 or 2;  $-CR^2=CH_2$ ,  $-CH_2OC(O)CR^2=CH_2$ ,  $CH_2N=C=S$ ,  $CH_2N=C=O$ ,  $CH_2NR^2H$ ,  $CH_2OH$ ,  $CH_2SCH_2CH_2CR^2=CH_2$ , phenyl,  $C(R^2)_2$  phenyl, furan, thiophene, halogen,  $C_3$ - $C_6$  cycloalkyl,  $C_3$ - $C_6$  heterocyclics, thiol,



or



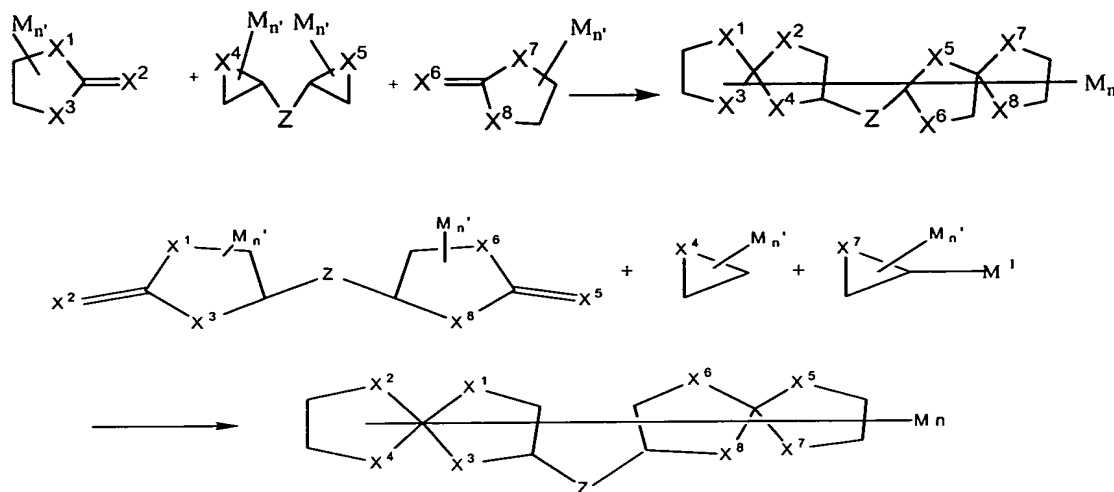
wherein A is S, O or phenyl and x is 0 or 1;

wherein  $R^1$  is  $C_1$ - $C_{22}$  alkyl; and

$R^2$  is H or  $C_1$ - $C_{22}$  alkyl to form the polymer.



36. (New) The (co)polymer of claim 35, wherein at least two and up to all four of  $X^1$ ,  $X^2$ ,  $X^3$  and  $X^4$  and at least two and up to all four of  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$  are sulfur.
37. (New) The (co)polymer of claim 35, further defined as comprised in an optical lens.
38. (New) A method of preparing a bisSTOC or bisSOTOC compound, comprising using either one of the following reactions schemes:

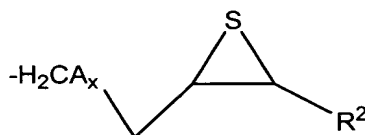


wherein  $X^1$ ,  $X^2$ ,  $X^3$ ,  $X^4$ ,  $X^5$ ,  $X^6$ ,  $X^7$ , and  $X^8$  are independently O or S;  $n'$  is independently 0, 1 or 2 ;

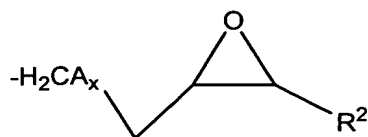
$n$  is 0 to 4;

$Z$  is  $-C_mR^{2}_{2m}-$  wherein  $m = 1-4$ ;  $-C(R^2)_2SC(R^2)_2-$ ,  $-C(R^2)_2SSC(R^2)_2-$ ,  $-C(R^2)_2OC(R^2)_2-$ ;

$M$  is independently selected from  $CH_2Cl$ ,  $CH_2SH$ ,  $CH_2SC(O)R^1$ ,  $CH_2SC(S)R^1$ ,  $CH_2S(CH_2CH_2S)_qH$  wherein  $q$  is 0, 1 or 2,  $-CR^2=CH_2$ ,  $-CH_2OC(O)CR^2=CH_2$ ,  $CH_2N=C=S$ ,  $CH_2N=C=O$ ,  $CH_2NR^2H$ ,  $CH_2OH$ ,  $CH_2SCH_2CH_2CR^2=CH_2$ , phenyl,  $C(R^2)_2$  phenyl, furan, thiophene, halogen,  $C_3-C_6$  cycloalkyl,  $C_3-C_6$  heterocyclics, thiol, H,



or

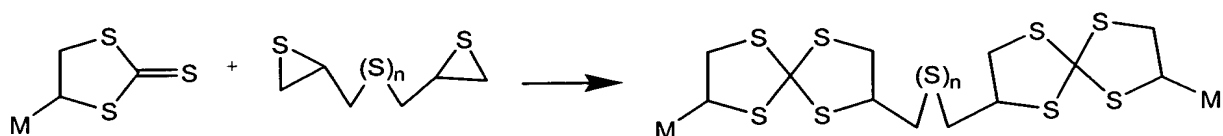


wherein A is S, O or phenyl and x is 0 or 1;

$R^1$  is  $C_1$ - $C_{22}$  alkyl; and

$R^2$  is H or  $C_1$ - $C_{22}$  alkyl.

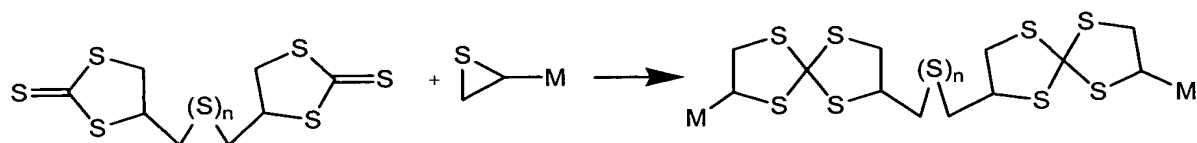
39. (New) The method of claim 38, comprising reacting a substituted ethylenetrithiocarbonate with a bis-methylthiirane sulfide or a bis-methylthiirane disulfide, in the presence of a catalytic amount of tetrafluoroboric acid to produce the bisSTOC as shown in the reaction below:



wherein

M is selected from  $CR_2SR'$ ,  $CR_2=CH_2$ ,  $R = H$ , or  $C_1$ - $C_4$  alkyl, and  $R' = H$ , acetyl, allyl, acrylate, or methacrylate and  $n = 1$  or  $2$ .

40. (New) The method of claim 38, comprising reacting a bis-ethylenetrithiocarbonate sulfide or a bis-ethylenetrithiocarbonate, with substituted thiirane in the presence of a catalytic amount of tetrafluoroboric acid to produce the bisSTOC according to the following reaction:



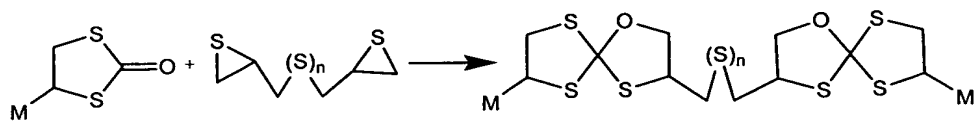
wherein M is  $CR_2Cl$ ,  $CR_2SR'$ , or  $CR_2=CH_2$ ;

R is H, alkyl  $C_1$ - $C_4$ ,

$R'$  is H, allyl, acrylate, or methacrylate, and

n = 1 or 2.

41. (New) The method of claim 38, comprising reacting a substituted ethylenedithiocarbonate with bis-methylthiirane sulfide or bis-methylthiirane disulfide in the presence of a catalytic amount of tetrafluoroboric acid to produce the bisSOTOC according to the reaction



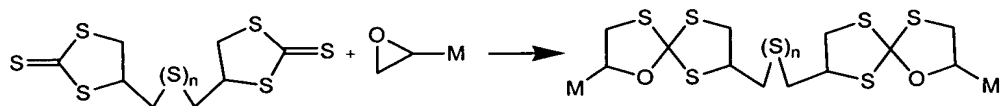
wherein  $M = CR_2SR'$ ,  $CR_2=CH_2$ ;

R = H, C<sub>1</sub>-C<sub>4</sub> alkyl,

R' = H, acetyl, allyl, acrylate, or methacrylate, and

n = 1 or 2.

42. (New) The method of claim 38, further defined as a method wherein at least one of bis-ethylenetrithiocarbonate sulfide or bis-ethylenetrithiocarbonate is reacted with a substituted oxirane, in the presence of a catalytic amount of tetrafluoroboric acid to produce the bisSOTOC according to the reaction



wherein  $M = CR_2Cl$ ,  $CR_2OR'$  or  $CR_2=CH_2$ ;

R = H, C<sub>1</sub>-C<sub>4</sub> alkyl;

R' = H, allyl, acrylate or methacrylate); and

n = 1 or 2.

43. (New) A method of preparing a polythiourethane polymer having a high refractive index comprising reacting at least one polyisocyanate or prepolymer thereof with a STOC, SOTOC, bisSTOC or bisSOTOC compound having at least one SH bearing substituent(s) as set forth in claim 1, or a mixture thereof.

44. (New) The method of claim 43, wherein the at least one polyisocyanate or prepolymer thereof is a diisocyanate or prepolymer thereof.
45. (New) The method of claim 43, wherein the STOC, SOTOC, bisSTOC or bisSOTOC compound has at least two SH bearing substituents.
46. (New) The method of claim 43, further defined as comprising:  
preparing a mixture of m-xylylene diisocyanate (m-XDI) and 2,7  
bis(mercaptomethyl)-1,4,6,9-tetrathiaspiro[4.4]nonane;  
adding a catalyst solution comprising KSCN and a crown-ether; and  
curing the mixture at a temperature above 20°C.
47. (New) The method of claim 43, further defined as comprising:  
dissolving  $\text{SnBu}_2\text{Cl}_2$  in m-xylylene diisocyanate (m-XDI);  
adding 2,7-Bis(mercaptomethyl)-1,4,6,9-tetrathiaspiro[4.4]nonane;  
stirring; and  
curing at a temperature above 30°C.
48. (New) A method of preparing a polymer having a high refractive index which comprises reacting a monomer having at least one unsaturated reactive group or a mixture thereof and/or one or more polyepisulfides with a STOC, SOTOC, bisSTOC or bisSOTOC compound having at least one SH bearing substituent(s) as set forth in claim 1, or a mixture thereof.
49. (New) The method of claim 48, wherein the STOC, SOTOC, bisSTOC or bisSOTOC compound has at least two SH bearing substituents.
50. (New) A method of preparing a polymer having a high refractive index which comprises reacting a monomer having at least one SH group or a mixture thereof and/or one or more polyepisulfides with a STOC, SOTOC, bisSTOC or bisSOTOC compound having at least one, preferably two episulfide bearing substituent(s) as set forth in claim 1, or a mixture thereof.
51. (New) The method of claim 50, wherein the monomer has at least two SH groups.

52. (New) The method of claim 50, wherein the STOC, SOTOC, bisSTOC or bisSOTOC compound has at least two episulfide bearing substituents.

53. A method of preparing a polymer having a high refractive index which comprises reacting one or more ccpolymerizable monomer having at least one unsaturated reactive group, one or more copolymerizable monomer having at least one SH group, one or more polythiol monomer(s), and/or polyepisulfide monomer(s) or prepolymer(s) thereof with a STOC, SOTOC, bisSTOC or bisSOTOC compound having at least one unsaturated group or mixtures thereof.